

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (canceled)

1 Claim 2 (currently amended): An apparatus for processing a  
2 signal used to communicate a block of data representing at  
3 least one symbol, the apparatus comprising:  
4 a Fourier transform circuit for performing at least  
5 one Fourier transform on a said signal used to communicate  
6 a block of data representing at least one symbol;  
7 a buffer coupled to said Fourier transform circuit for  
8 buffering data produced from an output of said Fourier  
9 transform circuit;  
10 a jitter compensation filter coupled to said buffer  
11 for performing a filtering operation on data obtained from  
12 said buffer corresponding to said block of data to generate  
13 a filtered block of data, the jitter compensation filter  
14 having an update input for receiving a filter coefficient  
15 update signal;  
16 an error calculation module coupled to the update  
17 input of the jitter compensation filter, the error  
18 ~~compensation~~ calculation module generating the filter  
19 coefficient update signal from at least one signal error  
20 estimate made from the filtered block of data output by the  
21 jitter compensation filter; and  
22 a control circuit coupled to said error  
23 calculation module for determining as a function of said at  
24 least one signal error estimate, when to output said  
25 filtered block of data.

1 Claim 3 (previously presented): The apparatus of claim 2,  
2 further comprising:  
3 a channel compensation circuit for receiving said  
4 block of data and performing a channel compensation  
5 operation on at least a portion of said block of data prior  
6 to the block of data being stored in said buffer for  
7 processing by said jitter compensation filter.

1 Claim 4 (original): The apparatus of claim 3, wherein said  
2 block of data represents a plurality of symbols, the  
3 apparatus further comprising:  
4 demodulator circuitry coupled to an output of the  
5 jitter compensation filter.

1 Claim 5 (previously presented): The apparatus of claim 2,  
2 wherein the error calculation module includes:  
3 means for generating a decision directed error  
4 value.

1 Claim 6 (currently amended): An apparatus for processing a  
2 signal used to communicate a block of data representing at  
3 least one symbol, the apparatus comprising:  
4 a Fourier transform circuit for performing at least  
5 one Fourier transform on a said signal ~~used to communicate~~  
6 ~~a block of data representing at least one symbol~~;  
7 a buffer coupled to said Fourier transform circuit for  
8 buffering data produced from an output of said Fourier  
9 transform circuit;  
10 a jitter compensation filter coupled to said buffer  
11 for performing a filtering operation on data obtained from  
12 said buffer corresponding to said block of data to generate  
13 a filtered block of data, the jitter compensation filter

14 having an update input for receiving a filter coefficient  
15 update signal; and  
16 an error calculation module coupled to the update  
17 input of the jitter compensation filter, the error  
18 compensation calculation module generating the filter  
19 coefficient update signal from at least one signal error  
20 estimate made from the filtered block of data output by the  
21 jitter compensation filter, wherein the error calculation  
22 module includes:  
23 means for generating a decision directed  
24 error value;  
25 means for generating a pilot directed error  
26 value; and  
27 a selection device for selecting one of the  
28 decision directed error value and the pilot  
29 directed error value to be output.

1 Claim 7 (currently amended): An apparatus for processing a  
2 signal used to communicate a block of data representing at  
3 least one symbol, the apparatus comprising:  
4 a Fourier transform circuit for performing at least  
5 one Fourier transform on a said signal ~~used to communicate~~  
6 ~~a block of data representing at least one symbol~~;  
7 a buffer coupled to said Fourier transform circuit for  
8 buffering data produced from an output of said Fourier  
9 transform circuit;  
10 a jitter compensation filter coupled to said buffer  
11 for performing a filtering operation on data obtained from  
12 said buffer corresponding to said block of data to generate  
13 a filtered block of data, the jitter compensation filter  
14 having an update input for receiving a filter coefficient  
15 update signal; and

16 an error calculation module coupled to the update  
17 input of the jitter compensation filter, the error  
18 compensation calculation module generating the filter  
19 coefficient update signal from at least one signal error  
20 estimate made from the filtered block of data output by the  
21 jitter compensation filter, wherein the error calculation  
22 module includes:

23 means for generating a decision directed  
24 error value;  
25 means for generating a non-decision directed  
26 error value; and  
27 a selection device for selecting one of the  
28 decision directed error value and the non-  
29 decision directed error value to be output.

1 Claim 8 (previously presented): The apparatus of claim 7,  
2 further comprising:

3 an input buffer coupled to the jitter  
4 compensation filter for storing said block of data while it  
5 being processed multiple times by said jitter compensation  
6 filter.

Claims 9 and 10 (canceled)

1 Claim 11 (currently amended): An apparatus for processing  
2 a signal used to communicate a block of data representing  
3 at least one symbol, the apparatus comprising:

4 a Fourier transform circuit for performing at least  
5 one Fourier transform on a said ~~signal used to communicate~~  
6 ~~a block of data representing at least one symbol;~~

7 a buffer coupled to said Fourier transform circuit for  
8 buffering data produced from an output of said Fourier  
9 transform circuit;

10 a jitter compensation filter coupled to said buffer  
11 for performing a filtering operation on data obtained from  
12 said buffer corresponding to said block of data to generate  
13 a filtered block of data, the jitter compensation filter  
14 having an update input for receiving a filter coefficient  
15 update signal, said buffer storing said block of data while  
16 said block of data is processed multiple times by said  
17 jitter compensation filter;

18 an error calculation module coupled to the update  
19 input of the jitter compensation filter, the error  
20 ~~compensation~~ calculation module generating the filter  
21 coefficient update signal from at least one signal error  
22 estimate made from the filtered block of data output by the  
23 jitter compensation filter; and

24 an output control device for determining when to  
25 output the filtered block of data generated by said jitter  
26 compensation filter.

1 Claim 12 (original): The apparatus of claim 11, wherein  
2 the output control device includes:

3 means for determining when said block of data has been  
4 filtered a fixed number of times by the jitter compensation  
5 filter.

1 Claim 13 (original): The apparatus of claim 11,  
2 wherein the output control device includes an input  
3 for receiving the filter coefficient update signal  
4 generated by said error calculation module; and

5        wherein the jitter compensation filter further  
6 includes means for resetting filter coefficient values to a  
7 set of initial values in response to a reset signal  
8 generated by said output control device.

Claims 14 and 15 (canceled)

1 Claim 16 (previously presented): A system for processing a  
2 multi-tone signal, the system including:  
3        a Fourier transform circuit for performing at least  
4 one Fourier transform on said multi-tone signal;  
5        a channel compensation module coupled to said Fourier  
6 transform circuit for performing a channel compensation  
7 operation on said multi-tone signal after processing by  
8 said Fourier transform circuit;  
9        a buffer coupled to said Fourier transform circuit for  
10 buffering the channel compensated multi-tone signal;  
11        a jitter compensation module coupled to said buffer  
12 for performing a jitter reduction operation on the buffered  
13 channel compensated multi-tone signal, wherein the jitter  
14 compensation module includes: a jitter compensation filter  
15 with programmable filter tap weights, and means for  
16 iteratively updating the filter tap weights as a function  
17 of the jitter compensation filter output; and  
18        a control circuit for determining when the output of  
19 the jitter compensation filter should be used as the output  
20 of the jitter compensation module.

1 Claim 17 (previously presented): The system of claim 16,  
2 wherein the means for iteratively updating the filter tap  
3 weights includes:

4 a signal error estimation circuit for generating from  
5 the output of the jitter compensation filter a measure of a  
6 symbol error.

1 Claim 18 (previously presented): A system for processing a  
2 multi-tone signal, the system including:

3 a Fourier transform circuit for performing at least  
4 one Fourier transform on said multi-tone signal;

5 a channel compensation module coupled to said Fourier  
6 transform circuit for performing a channel compensation  
7 operation on said multi-tone signal after processing by  
8 said Fourier transform circuit;

9 a buffer coupled to said Fourier transform circuit for  
10 buffering the channel compensated multi-tone signal;

11 a jitter compensation module coupled to said buffer  
12 for performing a jitter reduction operation on the buffered  
13 channel compensated multi-tone signal, wherein the jitter  
14 compensation module includes : a jitter compensation filter  
15 with programmable filter tap weights, and means for  
16 iteratively updating the filter tap weights as a function  
17 of the jitter compensation filter output, wherein the means  
18 for iteratively updating the filter tap weights includes a  
19 signal error estimation circuit for generating from the  
20 output of the jitter compensation filter a measure of a  
21 symbol error; and

22 means for resetting the jitter compensation filter tap  
23 weights to an initial set of values in response to the  
24 control circuit determining that the output of the jitter  
25 compensation filter should be used as the output of the  
26 jitter compensation filter.

1 Claim 19 (previously presented): A method of processing a  
2 multi-tone signal, the method comprising the steps of:  
3 performing a Fourier transform operation on the multi-  
4 tone signal;  
5 buffering a block of samples produced from the output  
6 of said Fourier transform operation; and  
7 performing a jitter compensation operation, said  
8 jitter compensation operation including:  
9 i) operating a filter having a plurality of tap  
10 weights to filter said block of samples to produce a  
11 filtered block of data;  
12 ii) determining a signal error from the filtered  
13 block of data;  
14 iii) updating at least one of said plurality of  
15 tap weights in said filter as a function of the  
16 determined signal error; and  
17 iv) repeating steps i, ii, and iii until a filter  
18 updating stop criterion is satisfied.

1 Claim 20 (original): The method of claim 19, further  
2 comprising the step of:  
3 supplying the filtered block of data output by  
4 said filter when said filter updating criterion is  
5 satisfied to subsequent receiver circuitry.

1 Claim 21 (original): The method of claim 19, wherein said  
2 filter updating stop criterion is the completion of a fixed  
3 number of filtering operations on said block of data.

1 Claim 22 (original): The method of claim 21, wherein said  
2 filter updating criterion is a failure in the signal error  
3 to exhibit an improvement over the previous signal error.



1 Claim 23 (original): The method of claim 19, wherein said  
2 step of determining a signal error includes generating a  
3 decision directed error value.

1 Claim 24 (original): The method of claim 19, wherein said  
2 step of determining a signal error includes generating a  
3 non-decision directed error value.

1 Claim 25 (previously presented): The method of claim 19,  
2 further comprising:  
3 prior to performing said buffering, performing a  
4 channel compensation operation on said block of data.

1 Claim 26 (original): The method of claim 25, a single  
2 channel compensation operation is performed on the block of  
3 data in a first period of time; and  
4 step i, ii and iii are performed multiple times  
5 in a time period which is equal to or shorter than the  
6 first time period.